

## THE "ZENITH" BALLOON ASCENT

ON Monday, M. Gaston Tissandier read a paper before the Paris Academy of Sciences on the recent fatal balloon ascent, in which he expressed his deliberate intention of renewing the attempt. The real cause of the catastrophe was the throwing out of ballast at an immense height; Tissandier attributes it to the "vertigo of high regions." The pain felt is so small that one forgets the danger in wishing to reach a higher level; so that he who is not able to restrain himself is not fitted to be an aeronaut in high regions.

The carbonic acid tubes having been broken in the fall, no analysis could be made, and consequently it is necessary to make another ascent in order to complete the experiment.

The figures given by M. Tissandier in his paper are substantially the same as those given in last week's NATURE (p. 495). The height reached was 8,600 meters, as proved by maximum-barometers, which had been sealed up, and were opened in the laboratory of the Sorbonne.

I believe the rapidity of ascent, but mainly the gas which escaped from the balloon, were instrumental in the deaths of Sivel and Crocé-Spinelli.

The matter deserves to be carefully investigated, and I shall try to elucidate it by an ascent which I propose to make next Sunday from La Villette, with Duruof and the Times correspondent. Our intention is not to make a race for a high altitude, and we will do our best to resist the vertigo of high regions so vividly described by Tissandier in his paper.

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## LECTURES AT THE ZOOLOGICAL GARDENS

ON Thursday, April 15, the first of the ten lectures announced for the present season was given by Mr. Sclater, F.R.S., "On Monkeys and their Geographical Distribution."

After referring to the considerable series of monkeys in the Society's collection, from which a specimen of the Chimpanzee (*Troglodytes niger*), of an albino Macaque Monkey (*Macacus cynomolgus*), and others were exhibited, Mr. Sclater drew attention to the six zoological provinces into which the surface of the earth was generally acknowledged to be divided. These he had named and defined as follows:—

1. *Palaearctic Region*.—Europe, Africa north of the Atlas, and North Asia.
2. *Ethiopian Region*.—Africa south of the Atlas, and Madagascar.
3. *Indian Region*.—South Asia, Philippines, and Islands of Indian Archipelago to Wallace's Line.
4. *Nearctic Region*.—North America down to Isthmus of Tehuantepec.
5. *Neotropical Region*.—Central America, south of the Isthmus of Tehuantepec, and South America.
6. *Australian Region*.—Australia, New Guinea, and Austro-Malay Archipelago. No monkeys being found in the Australian or Nearctic regions, and none in the Palaearctic, except the Macaque of North Africa and Gibraltar.

Commencing with the Anthropoid Apes, the Gorilla (*Troglodytes gorilla*) was shown to inhabit the tropical regions of West Africa only, not extending south beyond the River Gaboon. The same region is the home of the Chimpanzee, which, however, spreads to the east for a considerable distance, having been captured in Abyssinia. It is also found as far south as the north bank of the River Congo. Of the two other genera of Anthropoid Apes, the Orang Utan and the Gibbon, the former is confined to Borneo and Sumatra, the latter to the Malay Peninsula, Assam, and the islands of the Indo-Malay Archipelago.

Of the Catarrhine or Old World Monkeys, there is a peculiar long-tailed genus, *Semnopithecus*, found in India and the Malay region. This is represented in Africa by the similarly peculiar genus *Colobus*, which wants the thumb; it is found mostly in West Africa, extending east as far as Abyssinia. Of this group the Indian Entellus Monkey is best known. The genus *Macacus* is almost confined to the Indian region; a species (*M. speciosus*)

is, however, found in Japan; and the Barbary Ape (*M. inuus*) from Ape's Hill has crossed to Gibraltar. The genera *Cercopithecus* and *Cynocephalus* are confined to the Ethiopian region.

The Platyrrhine Monkeys, with an extra premolar on each side of each jaw, are inhabitants of the tropical portions of the Neotropical region only. Amongst them are included the genera *Cebus*, *Ateles*, *Myctes*, *Brachyurus*, and others, some with, and others without, prehensile tails, many of which have, at one time or other, lived in the Society's Gardens. The Marmosets have one less molar in each half of each jaw, which makes the number of their teeth the same as in man, although this is the consequence of there being four more premolars and four fewer true molars.

The Lemuridae, whether they ought to be included with the monkeys, or whether they form an independent group, may be considered with the quadrumana, as has been usually the case. They are distributed throughout the Ethiopian and Indian regions, nearly all the species, including Chiromys, being confined to Madagascar, which must be considered their true headquarters.

The following is an abstract of Mr. J. W. Clark's lecture on Sea Lions, delivered on April 22nd.—The Pinnipedia, comprising the Sea Lion, Sea Bear, Seal, and Walrus, are true mammalian animals, entirely differing from fish both in structure and habit. The Order naturally falls into two subdivisions, namely, the Eared and the Earless Seals; or, the Otariadae, otherwise called Sea Lions, and the Trichechidae (Walrus), together with the Cystophoridae (Bladder-nosed Seals) and Phocidae (True Seals). The former of these groups, the Otariadae, differ from the Seals, the Phocidae, in other respects than the possession of ears. They can use their limbs freely to raise the body from the ground and to walk on the land. They can even run swiftly for a short distance. The Seals, on the contrary, always retain their hind feet stretched out backwards, the legs being so enclosed within the integument of the body that they have little or no independent motion. They consequently are only able to progress on land by a series of ungraceful bumps, wriggling on the stomach. The body of the Sea Lion is peculiarly flexible, whilst that of the Seal has but little motion on its axis, the animal progressing in the water in much the same manner as the Porpoise. The Sea Lion's head is also more elongated and narrow in proportion to its width than that of any Seal. Its ears are small, conical organs, projecting backwards, and so rolled up, scrollwise, that their convexity is rarely shown. But by far the most modified portions of the body of the Sea Lion are the hands and feet. In the Seal the arm is wholly imbedded in the integument, the hand alone projecting. In the Sea Lion, on the contrary, nearly the whole of the upper half of the limb is free, and the thumb is much lengthened, this digit in the Seals being of the same length as the others. In the hinder extremity the lower part of the leg and the foot are free, the rest of the limb being bound up with the body.

With regard to the *skin* of the Sea Lion; on a superficial view the body appears to be covered with coarse stiff hair, which varies in length on different parts. Old males are said to develop a mane, whence the name given them by early voyagers, but it is not certain that this ornament is present in all the species. Beneath this hair there is a crop of under wool, distributed in delicate, short, fine hairs set at the base of the other larger ones. It appears to exist all over the body.

This part of the subject is rather involved. It is stated that of these Otarias, or Sea Lions, some species have under-fur whilst others have not, and attempts have been made to divide them into families accordingly. It is, however, highly probable that all Otarias have under-fur at some period of their lives. It is this under-fur of the Sea Lions which makes that sealskin in which all ladies delight.

The habits of the Sea Lion are among the most curious in the whole of the animal kingdom. Its food consists mostly of fish, mollusca, crabs, and penguins. The molar teeth being small, it cannot masticate its food, and when it has caught a fish, too large to be swallowed outright, it has been seen to give its head a sudden twist, so as to break off a portion of the fish, which it swallows rapidly. It then dives into the water, picks up the other portion, and repeats the tearing process until the last fragment is devoured.

Their favourite places of resort are solitary islands, either far out at sea, or at any rate clear of an inhabited coast. Many return year after year to the same rock. The natives at the

Pribilof Islands\* affirm that one old male seal, recognised by the loss of one of his flippers, returned seventeen years in succession. The ground they occupy, called a "rookery," is the space between the high-water line and the foot of the cliffs. The sandy beach forms the play-ground for the pups, the uplands being their sleeping places: Like the bees, they are

"Creatures that, by rule in nature, teach  
The art of order to a peopled kingdom."

The arrangement of their dominions are adopted by common consent, and enforced by the elders with much severity. The old males and the full-grown females are alone allowed upon the rookeries; the young seals swim about during the day, at night retiring to the uplands. The natives of the Pribilof Islands called the old males "Married Seals," the old females "Mothers," and the young females "Bachelors."

During the winter months the rookeries of the Pribilof Islands are entirely deserted, except by a few stragglers; but Capt. Musgrave, who was wrecked on the Auckland Islands, south of New Zealand, tells us that there numbers remain all the year round. In the spring a few old veteran males—the chiefs of the herd—make their appearance near the islands, swimming about for several days. If all is safe, they land and examine the rookery; they depart for a few days, and return accompanied by a number of other veteran males. These land, each taking up a position, reserving for himself a space of about thirty square yards, which he defends against all comers. About two months later the females begin to make their appearance. It is the duty of the "Bachelors" to drive them on to the rocks, the nearest adult male going down to meet each female, coaxing her until he can get between her and the shore. His manner then immediately changes, and with an angry growl he drives her up to his resting-place. It seems to be the object of each of these polygamous sultans to attach to himself a harem of from fifteen to twenty wives. When the males nearest the water have made their choice, those in the next row higher up watch for an opportunity to steal the wives of their more fortunate neighbours. When all the females have landed and been distributed among the claimants, no further change takes place, each sultan walking round and round his family and driving off all intruders. This is the account given by Capt. Bryant, commander of the station at the Pribilof Islands. Capt. Musgrave, in his account of the Seals of the southern hemisphere, does not indicate that this jealous distribution is so customary.

The cubs are born a few days after the arrival of their mothers, and always on shore. They have a great aversion for the water at first, and are taught to swim by their mothers. It is a most curious fact that during all the while these creatures are on shore they remain absolutely without food; they arrive excessively fat, and, as is not surprising after a fast of two months, depart extremely lean. When the young can shift for themselves the rookeries are broken up.

Respecting the different species of these Sea Lions and their geographical distribution, Magellan, in 1519, was the first to notice their chief peculiarities. He found them on an island south of the River Plate, and called them Sea Wolves. No naturalist, however, distinguished them from the Seals proper, with the exception of the Russian Steller, who, visiting the Aleutian Islands in the middle of the last century, saw the two species which are found there, and described them as the Sea Bear and the Sea Lion. Linnæus, in 1758, nevertheless included them all in his genus *Phoca*, and it was not till 1800 that Péron again separated them. Subsequently, they have been minutely studied by Dr. J. E. Gray, and Dr. Peters of Berlin. Both these authors, however, have been far too fond of making new genera and species upon single skulls, or even single skins. It seems to me better to retain Péron's original genus *Otaria* for the whole group, the number of species of which amount to nine. True Seals inhabit the Arctic and Antarctic seas, as well as the temperate regions in both hemispheres, together with the Antilles and Madeira. The Otarias are more tolerant of warmth, and are apparently more susceptible to changes of climate. A remarkable fact about their distribution is that none are found in the Atlantic, except in its extreme south. From the mouth of the River Plate they extend all round the coasts of South America and the adjoining islands. Proceeding north, they are numerous upon the coast of California, and extend round by the Aleutian Islands to the coast of Japan. Their most northern known station is that of the Pribilof Islands; further investigation

\* Situated in Behring Sea.

will perhaps reveal their existence in some of the islands north and south of the equator in the Pacific Ocean. They are found all round the coasts of New Zealand, the Aucklands, Tasmania, and Southern Australia. They are said to inhabit Kerguelen's Land and the Crozets: we also know that there is one species at least near Capetown, a specimen from that locality being now alive in the Zoological Gardens.

(To be continued.)

## NOTES

AN appeal is being made by the Committee for the Exploration of the Victoria Cave, Settle, for additional funds; the work, we much regret to say, being actually at a stop from want of means. This is not as it should be, and we feel sure that the state of matters only needs to be made known to the scientific public in order to have it remedied. The importance of these explorations need not be insisted on in these pages; results have been already achieved of the highest value to the geologist, the historian, and the antiquary. What further records may be found at the cave in lower and earlier deposits than those yet investigated, is a question which can only be solved by actual work. The bottom of the cave has never yet been reached. The series of bones obtained during the past year is exceedingly fine, and may challenge comparison with any in the kingdom; and altogether the work, besides bearing already many important results, is one of great promise. The British Association have given three several grants of 50%, but by far the greater share of the expense has fallen on a few individuals who have contributed liberally. This should be so no longer, and we earnestly hope that all our readers will do what they can to help forward an undertaking of so great importance. Subscriptions should be forwarded to John Birkbeck, jun., hon. treasurer of the "Settle Caves Exploration Fund," the Craven Bank, Settle, Yorkshire.

A TELEGRAM dated Bombay, April 22, states that the members of the Solar Eclipse Expedition have left that place on their return to England.

NEWS is to hand of a recent volcanic eruption in Iceland; the following particulars we gather from the Icelandic correspondent of the *Scotsman*:—Shortly before Christmas 1874 earthquakes were experienced over the north-east part of Iceland. About Christmas, columns of smoke were seen rising, and therefore a party were sent from the Myvatn on the 15th of January to reconnoitre. They went straight southwards over Óðadahraun, and made for the Dyngjufjöll. The Dyngjufjöll form a circle of mountains, and within this circle there is a lava stretch called Askja (The Box). Here the exploring party found the eruption to have taken place, and they state that a large crater has been formed, from which lava and clay are being thrown hundreds of feet upwards. They found many small craters grouped round the big one, and from several of these water was flowing. All around the earth was rent into large fissures, and at some places it had subsided to a considerable extent. Since this visit, the column of smoke has been seen daily in clear weather, and slight earthquakes have been felt at intervals. On the night of the 18th February, the gleam of a great fire was seen from Grimsstodum, in a western direction. A new exploring party found the fire to be twenty miles from the inhabited district, to the west of the so-called Sveinagja, in the Austurfjöllum. The eruption had taken place from several craters. Some have piled up the lava around them into shapes resembling castles; from others the lava had flowed in a stream, and formed a lava-field of large extent. Most of the craters were smoking when the party arrived. The lava stream from all the craters is between two and three miles long, and from 600 to 800 yards broad. At many places the glowing fire was seen on looking down through the fissures, and the crust was found to be two or three feet thick. In two or three places small hollow